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the Pacific coast, in the November number of the *AMERICAN NATURALIST*. I traversed the same region on my way to Victoria last spring, and hope shortly to publish in the *Canadian Naturalist* a few memoranda made at the time. As you will see by the abstract of a paper of mine, read before the Geological Society last June (posted with this), I believe it can be shown that the glaciation of the south-eastern part of Vancouver Island was not accomplished by the glaciers of the interior of the island, as such, but by a great glacier sheet filling the Strait of Georgia, which though receiving tribute from the mountains, was fed chiefly by the accumulations on the coast range of the mainland, and perhaps through its gaps by ice from the central plateau of the country. I hope soon to be able to send to you a printed copy of the paper referred to, which will make the points on which this supposition is based, clear. The north to south glaciation of the interior of the province, mentioned in the abstract, I have been able to confirm during this season's exploration, in a number of additional localities, and have even found it furrowing the summit of an almost isolated mountain at an elevation of over 5000 feet.

"The original discovery of marine shells in the drift of Vancouver Island is due to Mr. H. Bauerman. You will find the matter mentioned in the *Quart. Journ. Geol. Society*, 1859, p. 198; also in Dr. Hector's Report of Explorations in the North-west; see also Mr. Dawson's article in the *Canadian Naturalist*: 'Note on some of the more recent changes in Level of the coast of British Columbia and adjacent Regions.'

MICROSCOPY.¹

NEW METHOD OF OPAQUE MOUNTING.—Mr. C. C. Merriman of Rochester, in a recent communication to the microscopical section of the Troy Scientific Association, describes the method of preparing his elegant preparations of foraminifera which have attracted unusual attention and admiration in the Postal Club, at the soirée of the Troy Association, and indeed wherever they have appeared. A cell is first made of a brass curtain ring slightly flattened by a hammer and suitably cemented to a slide. A cover glass, of size to match, is then varnished on one side with a thin solution of balsam, and upon this coating, when sufficiently hard, the shells are arranged in the usual manner; the whole group is then varnished over with successive coats of the balsam solution until completely imbedded in it; coats of asphalt varnish are then added until a perfect black-ground is obtained. The success of these procedures depends almost wholly upon using the solutions in a thin state, and allowing one to dry thoroughly before another is added. When all is dry and hard, the cover, with its objects mounted on it, is inverted on the cell

¹ This department is edited by Dr. R. H. WARD, Troy, N. Y.

and attached by any strong varnish, and the joint finished off with white zinc cement. The objects appear with great distinctness, lying with their upper surfaces on a level and close to the cover glass, but looking as if they were at the bottom of a dark, deep cell. This method is also applicable to many of those objects which show well as opaque objects when immersed in balsam.

IMAGES IN THE EYES AFTER SUDDEN DEATH.—Mr. Henry C. Hyde, the newly elected president of the San Francisco Microscopical Society, in his opening address, gave a very interesting summary of the recent remarkable discoveries of Profs. Böll, of Rome, and Kühne, of Heidelberg, in the anatomy and physiology of the eye. He said that the popular notion that the *murderer's image* is found photographed as it were on the retina of his victim's eye may have some foundation in fact, viewed in the light of these recent discoveries, especially those of Dr. Kühne. Histologists have always considered the rods and cones of the retina, which are taken to be the terminal organs of the optic nerve, to be in a natural condition when under examination. Prof. Böll found, however, that when the animal, say a frog, is killed rapidly and the retina viewed as quickly as possible, it has peculiarities never before observed, and throwing new light on the physiology of vision.

Since the experiments of Dr. Kühne are more elaborate and extensive than those of Prof. Böll, a sketch of them will be most instructive. Prof. Boll found that the newly removed retina had a rosy purple tint, which was difficult to examine, because exposure to light changed it in ten seconds to a satiny lustre, and then after fifteen minutes of transparency to a turbid opacity. Dr. Kühne discovered that if kept in the dark, or in sodium (yellow) light, the delicate "vision purple" of the removed retina could be retained as long as wished, thus making a series of very original and incisive experiments possible. It is proved that the retina contains a substance which, under the influence of light, undergoes a chemical change varying in intensity with the intensity and character of the luminous rays. In the living retina there is some process which restores to this substance its responsiveness to light as fast as it loses it by the action of light—a continual recharging with powder, as it were, of the retinal batteries which the impact of light waves is continually firing whilst vision continues. But after death, or removal of the retina, the gunner—the faithful heart with its supply of nutrient blood—having ceased his work, the last charge is fired and the batteries stand emptied. So, the light waves remove the color from the isolated retina in a few moments, unless they be shut out by darkness, then the retina can be kept in its natural condition, purple colored, the batteries ready charged to signal to the brain

by their discharge the impact of the first light wave. Having thus the power of keeping retinae just as they leave the eye, by immersing them in darkness, or yellow light, very much as the photographer takes his negative from the camera and preserves and finally *fixes* the image, working at it always by yellow gas-light, Kühne also preserved the images that were in the natural photographic plate, the retina of the natural camera, the eye, and actually *fixed* these images by soaking them in a solution of alum. Thus he would fix the head and one of the eye-balls of a living rabbit opposite a bright skylight, cover it with a black cloth for five minutes, then remove the cloth, exposing the eye a few minutes, immediately remove the eye, soak in alum, and, upon examining the retina, find a beautifully accurate image of the skylight, showing its separate parts, the boards, etc. Even the eye in a severed head gave these results. The images were generally of a rosy hue.

Now, while this proves that images of objects seen before death may be found on the retina after death, yet, since to make this possible, the eye and the object must be perfectly still for some minutes, and the light must be strong, it probably never has happened, and never will happen that the image of the murderer is found in the eye of his victim, murder being a deed of darkness, and a deed tending to anything but immovableness in those enacting it.

ANNUAL ELECTIONS IN MICROSCOPICAL SOCIETIES.—The following officers of societies have been elected since those last published:

Jamestown Microscopical Club. Organized June, 1873. Meets first Thursday evening of each month. Dr. A. Waterhouse, president; Chas. E. Fuller, secretary and treasurer.

Louisville Microscopical Society. Founded January, 1874. Meets first and third Thursdays of each month at Louisville Library. Dr. J. B. Marvin, president; Dr. J. Sloan and Prof. W. F. Beach, vice-presidents; D. W. Lane, secretary; J. Williamson, corresponding secretary; A. L. McDonald, treasurer.

San Francisco Microscopical Society. Henry C. Hyde, president; C. Mason Kinne, vice-president; X. Y. Clark, recording secretary; C. W. Banks, corresponding secretary; J. A. Langstroth, treasurer.

Buffalo Microscopical Club. Dr. L. Howe, president; Jas. W. Ward, secretary; Henry Mills, D. S. Kellicott and Geo. E. Fell, advisory council.

LABORATORY WORK AT THE SEASIDE.—The third session of the Summer School of Biology will be opened at the Museum of the Peabody Academy of Science, Salem, Mass., beginning July 5th and continuing six weeks. Lectures will be given five days of each week, and the best of opportunities afforded for laboratory

work with the microscope. In addition to the regular instruction in zoölogy by Dr. A. S. Packard and Messrs. C. S. Minot, J. H. Emerton and J. S. Kingsley, a series of afternoon lectures on microscopy will be given by Rev. E. C. Bolles. Admission fee, \$20.00; board, \$5.00 to \$7.00 per week.

Besides this tempting arrangement, a marine zoölogical laboratory will be opened June 1st, on the outer shore of Salem Neck, under the care of Messrs. Emerton and Minot, in a position most favorable for the study and collection of marine plants and animals. The cost will be \$20.00 per month, and students can conveniently attend the Summer School of Biology at Salem.

SOIRÉES.—The annual meeting of the Buffalo Microscopical Club, at Goodrich Hall in that city, terminated in a soirée and exhibition of microscopic objects. A large variety of popular and interesting objects were shown under nearly twenty microscopes, to the universal gratification of the large audience. Dr. Geo. E. Blackham, of Dunkirk, and Chas. E. Fuller, of Jamestown, assisted the local members in the entertainment of the evening.

The microscopical section of the Troy Scientific Association and a large party of invited guests were entertained at the residence of the chairman of the section, Dr. R. H. Ward, on the occasion of the annual soirée on the evening of March 4th. The microscopes, over thirty in number and many of them first-class instruments, were arranged on tables in different parts of the house, and the objects were classified in a strictly natural manner, each table with its group of instruments being used to illustrate some one field in the study of nature. By substituting this plan for the want of method which is generally allowed to result from the caprice of individual exhibitors, and the use of a systematically arranged catalogue, and of cards stating the objects shown and the magnifying powers used, the exhibition was carried on promptly notwithstanding the large crowd in attendance. The soirée was the largest and most enthusiastic meeting ever held by the section.

EXCHANGES.—Wanted, some well-posted diatomist to give the correct names of diatoms (arranged) on a few slides in exchange for the slides. C. M. Vorce, 164 Lake street, Cleveland, Ohio.

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SCIENTIFIC NEWS.

— A paper has been recently published in the *Penn Monthly Magazine* by William Blasius of Philadelphia, in which he criticizes the methods of meteorological investigation usually adopted. He, however, commends those employed by Prof. Loomis, of Yale College, but asserts that they have been mostly derived from his own previously issued publications.